## CLAIMS

What is claimed is:

1. A method for cross-fading digital audio, comprising the steps of:

(a) determining a plurality of characteristics for a first and a second digital audio files;

(b) associating the plurality of characteristics with the first and the second digital audio files;

(c) automatically determining an appropriate cross-fading method for the first and the second digital audio files based upon the plurality of characteristics when the first and the second digital audio files are to be cross-faded; and

(d) automatically cross-fading the first and the second digital audio files in accordance with the cross-fading method.

2. The method of claim 1, wherein the determining step (a) comprises:

(a1) determining the plurality of characteristics by a user for the first and the second digital audio files.

3. The method of claim 1, wherein the determining step (a) comprises:

(a1) automatically decompressing a beginning of the second digital audio file;

(a2) automatically analyzing an envelope of the second digital audio file to determine a fade-in characteristic;

(a3) automatically decompressing an end of the first digital audio file to determine a

fade-out characteristic; and

(a4) automatically analyzing the first and the second digital audio files for others of the plurality of characteristics.

4. The method of claim 1, wherein the determining step (a) comprises:

(a1) automatically prefetching and decoding an end of the first digital audio file;

(a2) automatically determining an ending characteristic of the first digital audio file;

(a3) automatically prefetching and decoding a beginning of the second digital audio file; and

(a4) automatically determining a beginning characteristic of the second digital audio file.

5. The method of claim 1, wherein the associating step (b) comprises:

(b1) storing the plurality of characteristics in at least one characteristics file associated with the first or the second digital audio file.

6. The method of claim 1, wherein the associating step (b) comprises:

(b1) storing the plurality of characteristics in a header or a tag in the first or the second digital audio file.

7. The method of claim 1, wherein the associating step (b) comprises:

(b1) storing the plurality of characteristics in a temporary memory.

8. The method of claim 1, wherein the automatically determining step (c) comprises:

(c1) comparing an ending characteristic for the first digital audio file with a beginning characteristic for the second digital audio file;

(c2) determining the appropriate cross-fading method based upon the comparing step (c1);

(c3) calculating a fade-out start time or an ending time for the first digital audio file;

(c4) defining an envelope for the first digital audio file;

(c5) defining a start time for the second digital audio file; and

(c6) defining an envelope for the second digital audio file.

9. The method of claim 1, wherein the automatically cross-fading step (d) comprises:

(d1) fading out or ending the first digital audio file according to an envelope of the first digital audio file when a fade-out time or an ending time is reached; and

(d2) starting or fading in the second digital audio file according to an envelope of the second digital audio file when a start time is reached.

10. A method for cross-fading digital audio, comprising the steps of:

(a) determining a plurality of characteristics by a user for a first and a second digital audio files;

(b) associating the plurality of characteristics with the first and the second digital audio files;

(c) automatically determining an appropriate cross-fading method for the first and the second digital audio files based upon the plurality of characteristics when the first and the second digital audio files are to be cross-faded; and

(d) automatically cross-fading the first and the second digital audio files in accordance with the cross-fading method.

11. The method of claim 10, wherein the associating step (b) comprises:

(b1) storing the plurality of characteristics in at least one characteristics file associated with the first or the second digital audio file.

12. The method of claim 10, wherein the associating step (b) comprises:

(b1) storing the plurality of characteristics in a header or a tag in the first or the second digital audio file.

13. The method of claim 10, wherein the associating step (b) comprises:

(b1) storing the plurality of characteristics in a temporary memory.

14. The method of claim 10, wherein the automatically determining step (c) comprises:

(c1) comparing an ending characteristic for the first digital audio file with a beginning characteristic for the second digital audio file;

(c2) determining the appropriate cross-fading method based upon the comparing step (c1);

(c3) calculating a fade-out start time or an ending time for the first digital audio file;

(c4) defining an envelope for the first digital audio file;

(c5) defining a start time for the second digital audio file; and

(c6) defining an envelope for the second digital audio file.

15. The method of claim 10, wherein the automatically cross-fading step (d) comprises:

(d1) fading out or ending the first digital audio file according to an envelope of the first digital audio file when a fade-out time or an ending time is reached; and

(d2) starting or fading in the second digital audio file according to an envelope of the second digital audio file when a start time is reached.

16. A method for cross-fading digital audio, comprising the steps of:

(a) automatically determining a plurality of characteristics for a first and a second digital audio files, comprising:

(a1) decompressing a beginning of the second digital audio file,

(a2) analyzing an envelope of the second digital audio file to determine a fade-in characteristic of the plurality of characteristics,

(a3) decompressing an end of the first digital audio file to determine a fade-out characteristic of the plurality of characteristics, and

(a4) determining others of the plurality of characteristics;

(b) associating the plurality of characteristics with the first and the second digital audio files;

(c) automatically determining an appropriate cross-fading method for the first and the second digital audio files based upon the plurality of characteristics when the first and the second digital audio files are to be cross-faded; and

(d) automatically cross-fading the first and the second digital audio files in accordance with the cross-fading method.

17. The method of claim 16, wherein the associating step (b) comprises:

(b1) storing the plurality of characteristics in at least one characteristics file associated with the first or the second digital audio file.

18. The method of claim 16, wherein the associating step (b) comprises:

(b1) storing the plurality of characteristics in a header or a tag in the first or the second digital audio files.

19. The method of claim 16, wherein the associating step (b) comprises:

(b1) storing the plurality of characteristics in a temporary memory.

20. The method of claim 16, wherein the automatically determining step (c) comprises:

(c1) comparing an ending characteristic for the first digital audio file with a beginning characteristic for the second digital audio file;

(c2) determining the appropriate cross-fading method based upon the comparing step (c1);

(c3) calculating a fade-out start time or an ending time for the first digital audio file;

(c4) defining an envelope for the first digital audio file;

(c5) defining a start time for the second digital audio file; and

(c6) defining an envelope for the second digital audio file.

21. The method of claim 16, wherein the automatically cross-fading step (d) comprises:

(d1) fading out or ending the first digital audio file according to an envelope of the first digital audio file when a fade-out time or an ending time is reached; and

(d2) starting or fading in the second digital audio file according to an envelope of the second digital audio file when a start time is reached.

22. A method for cross-fading digital audio, comprising the steps of:

(a) automatically determining a plurality of characteristics for a first and a second digital audio files, comprising:

(a1) prefetching and decoding an end of the first digital audio file,

(a2) determining an ending characteristic of the first digital audio file,

(a3) prefetching and decoding a beginning of the second digital audio file, and

(a4) determining a beginning characteristic of the second digital audio file,

(b) automatically associating the plurality of characteristics with the first and the second digital audio files;

(c) automatically determining an appropriate cross-fading method for the first and

the second digital audio files based upon the plurality of characteristics when the first and the second digital audio files are to be cross-faded; and

(d) automatically cross-fading the first and the second digital audio files in accordance with the cross-fading method.

23. The method of claim 22, wherein the automatically associating step (b) comprises:

(b1) storing the plurality of characteristics in at least one characteristics file associated with the first or the second digital audio files.

24. The method of claim 22, wherein the associating step (b) comprises:

(b1) storing the plurality of characteristics in a header or a tag in the first or the second digital audio files.

25. The method of claim 22, wherein the associating step (b) comprises:

(b1) storing the plurality of characteristics in a temporary memory.

26. The method of claim 22, wherein the automatically determining step (c) comprises:

(c1) comparing the ending characteristic for the first digital audio file with the beginning characteristic for the second digital audio file;

(c2) determining the appropriate cross-fading method based upon the comparing step (c1);

(c3) calculating a fade-out start time or an ending time for the first digital audio file;

(c4) defining an envelope for the first digital audio file;

(c5) defining a start time for the second digital audio file; and

(c6) defining an envelope for the second digital audio file.

27. The method of claim 22, wherein the automatically cross-fading step (d) comprises:

(d1) fading out or ending the first digital audio file according to an envelope of the first digital audio file when a fade-out time or an ending time is reached; and

(d2) starting or fading in the second digital audio file according to an envelope of the second digital audio file when a start time is reached.

28. A computer readable medium with program instructions for cross-fading digital audio, the instructions for:

(a) determining a plurality of characteristics for a first and a second digital audio files;

(b) associating the plurality of characteristics with the first and the second digital audio files;

(c) automatically determining an appropriate cross-fading method for the first and the second digital audio files based upon the plurality of characteristics when the first and the second digital audio files are to be cross-faded; and

(d) automatically cross-fading the first and the second digital audio files in accordance with the cross-fading method.

29. A computer readable medium with program instructions for cross-fading digital audio, the instructions for:

(a) automatically determining a plurality of characteristics for a first and a second digital audio files, comprising:

(a1) decompressing a beginning of the second digital audio file,

(a2) analyzing an envelope of the second digital audio file to determine a fade-in characteristic of the plurality of characteristics,

(a3) decompressing an end of the first digital audio file to determine a fade-out characteristic of the plurality of characteristics, and

(a4) determining others of the plurality of characteristics;

(b) associating the plurality of characteristics with the first and the second digital audio files;

(c) automatically determining an appropriate cross-fading method for the first and the second digital audio files based upon the plurality of characteristics when the first and the second digital audio files are to be cross-faded; and

(d) automatically cross-fading the first and the second digital audio files in accordance with the cross-fading method.

30. A computer readable medium with program instructions for cross-fading digital audio, the instructions for:

(a) automatically determining a plurality of characteristics for a first and a second digital audio files, comprising:

(a1) prefetching and decoding an end of the first digital audio file,

(a2) determining an ending characteristic of the first digital audio file,

(a3) prefetching and decoding a beginning of the second digital audio file, and

(a4) determining a beginning characteristic of the second digital audio file,

(b) automatically associating the plurality of characteristics with the first and the second digital audio files;

(c) automatically determining an appropriate cross-fading method for the first and the second digital audio files based upon the plurality of characteristics when the first and the second digital audio files are to be cross-faded; and

(d) automatically cross-fading the first and the second digital audio files in accordance with the cross-fading method.

31. A system, comprising:

a first digital audio file;

a second digital audio file; and

a playing device, wherein the playing device determines a plurality of characteristics for the first and a second digital audio files, associates the plurality of characteristics with the first and the second digital audio files, automatically determines an appropriate cross-fading method for the first and the second digital audio files based upon the plurality of characteristics when the first and the second digital audio files are to be cross-faded, and automatically cross-fades the first and the second digital audio files in accordance with the cross-fading method.